

**WHAT IS CLAIMED IS:**

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2 1. A method for making a printed circuit board having jumper lines,  
3 comprising the steps of:

4 a) making a printed circuit board;

5 b) coating or printing a dielectric material on the printed circuit board  
6 to form an isolation layer;

7 c) forming multiple pads in the isolation layer of the dielectric  
8 material, thereby exposing part of the printed circuit board without covered by  
9 the dielectric material; and

10 d) coating or printing a high conductive material on the isolation  
11 layer of the dielectric material to connect the multiple pads, thereby forming a  
12 planar jumper layer that is connected to the printed circuit board through the  
13 circular pads.

14 2. The method for making a printed circuit board having jumper lines  
15 in accordance with claim 1, wherein the dielectric material is a high dielectric  
16 value material.

17 3. The method for making a printed circuit board having jumper lines  
18 in accordance with claim 1, wherein the step a) further includes the steps of:

19 determining a pre-estimated value of an effective dielectric constant;

20 determining a shortened size of a microwave circuit according to the  
21 pre-estimated value of the effective dielectric constant and a used working  
22 frequency; and

23 making a printed circuit board containing the microwave circuit  
24 according to the shortened size that is determined.

1 4. A method for making a printed circuit board having jumper lines,  
2 comprising the steps of:

3 a) determining a pre-estimated value of an effective dielectric  
4 constant;

5 b) determining a shortened size of a microwave circuit according to  
6 the pre-estimated value of the effective dielectric constant and a used working  
7 frequency;

8 c) providing a dielectric substrate that may increase the effective  
9 dielectric constant to the pre-estimated value;

10 d) making the microwave circuit with a shortened size on the  
11 dielectric substrate;

12 e) coating or printing an isolation layer on the microwave circuit;

13 f) forming multiple pads in the isolation layer, thereby exposing part  
14 of the microwave circuit without covered by the isolation layer; and

15 g) coating or printing a high conductive material on the isolation  
16 layer to connect the multiple pads, thereby forming a planar jumper layer that  
17 is connected to the microwave circuit through the circular pads.

18 5. A printed circuit board having jumper lines, comprising: a line  
19 layer, an isolation layer made of a dielectric material coated on the line layer,  
20 multiple pads formed in the isolation layer, thereby exposing part of the line  
21 layer without covered by the isolation layer, and a high conductive material  
22 coated on the isolation layer to connect the multiple pads, thereby forming a  
23 planar jumper layer that is connected to the line layer through the circular pads.

1           6. The printed circuit board having jumper lines in accordance with  
2 claim 5, wherein the printed circuit board may be overlapped with other circuit  
3 substrates, thereby forming a multi-layer printed circuit board.

4           7 A printed circuit board having jumper lines, comprising: a  
5 dielectric substrate, a metallic ground layer mounted on a first side of the  
6 dielectric substrate, and a line layer mounted on a second side of the dielectric  
7 substrate, an isolation layer made of a high dielectric value material coated on  
8 the line layer, multiple pads formed in the isolation layer, thereby exposing  
9 part of the line layer without covered by the isolation layer, and a high  
10 conductive material coated on the isolation layer to connect the multiple pads,  
11 thereby forming a planar jumper layer that is connected to the line layer  
12 through the circular pads.

13           8. The printed circuit board having jumper lines in accordance with  
14 claim 7, wherein the printed circuit board may be overlapped with other circuit  
15 substrates, thereby forming a multi-layer printed circuit board.

16           9. A printed circuit board having jumper lines, comprising: a  
17 dielectric substrate, a metallic ground layer mounted on one side of the  
18 dielectric substrate, an isolation layer made of a high dielectric value material  
19 coated on the metallic ground layer, multiple pads formed in the isolation layer,  
20 thereby exposing part of the metallic ground layer without covered by the  
21 isolation layer, and a high conductive material coated on the isolation layer to  
22 connect the multiple pads, thereby forming a planar jumper layer that is  
23 connected to the metallic ground layer through the circular pads.

1           10. The printed circuit board having jumper lines in accordance with  
2 claim 9, wherein the printed circuit board may be overlapped with other circuit  
3 substrates, thereby forming a multi-layer printed circuit board.

4           11. A printed circuit board having jumper lines, comprising: a  
5 dielectric substrate made of a high dielectric value material, a metallic ground  
6 layer mounted on a first side of the dielectric substrate, a line layer mounted on  
7 a second side of the dielectric substrate, an isolation layer coated on the line  
8 layer, multiple pads formed in the isolation layer, thereby exposing part of the  
9 line layer without covered by the isolation layer, and a high conductive  
10 material coated on the isolation layer to connect the multiple pads, thereby  
11 forming a planar jumper layer that is connected to the line layer through the  
12 circular pads.

13           12. The printed circuit board having jumper lines in accordance with  
14 claim 11, wherein the printed circuit board may be overlapped with other  
15 circuit substrates, thereby forming a multi-layer printed circuit board.

16           13. A printed circuit board having jumper lines, comprising: a  
17 dielectric substrate made of a high dielectric value material, a metallic ground  
18 layer mounted on one side of the dielectric substrate, an isolation layer coated  
19 on the metallic ground layer, multiple pads formed in the isolation layer,  
20 thereby exposing part of the metallic ground layer without covered by the  
21 isolation layer, and a high conductive material coated on the isolation layer to  
22 connect the multiple pads, thereby forming a planar jumper layer that is  
23 connected to the metallic ground layer through the circular pads.

1           14. The printed circuit board having jumper lines in accordance with  
2 claim 13, wherein the printed circuit board may be overlapped with other  
3 circuit substrates, thereby forming a multi-layer printed circuit board.  
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